Abstract
Purpose – The purpose of this paper is to explore the growth and development of periodical literature on Web 2.0 technologies and their other fields.
Design/methodology/approach – Bibliographic data of the articles published in the 13 leading peer-reviewed journals are obtained from the Emerald database (www.emeraldinsight.com) directly using such keywords as “Web 2.0”, “blogs”, “wikis”, “RSS”, “social networking sites”, “podcasts”, “Mashup”, and multimedia sharing tools, i.e. YouTube and Flickr. The bibliographical surrogates such as author, title, subtitle, source, issue, volume, pages, etc. were recorded in MS-Excel (2010) sheet for the analysis and interpretation of data. A bibliography of selected articles is provided.
Findings – The study found 206 research articles on the subject published in 13 leading library and information science journals of Emerald for period 2007-2011. Further, the study found that 2009 was the most productive year with 69 articles. The study observed Online Information Review published 49 articles, and hence can be considered the core journal on the topic. Mike Thelwall from the UK was found to be the most prolific author, having authored or co-authored five articles.
Research limitations/implications – The study was based on 206 research articles published during the years 2007-2011. The study was restricted to this period because the Web 2.0 concept was originated during 2004-2005 and the undertaken period has sufficient published literature on the topic.
Originality/value – The paper provides reliable and authentic information on the subject. This is the first study on this topic.
Keywords Web 2.0, Journals, Library 2.0, Social networking sites, Blogs, Wikis, Really simple syndication, Bibliometrics
Paper type Literature review

Introduction
The world wide web (WWW or Web) is the most remarkable and magnificent service of the internet, and can be regarded as one of the most innovative services of the twenty-first century. The latest innovations and refinements in internet-based services mean that the web has scaled new heights in terms of innovative tools and services, such as providing a collaborative, information sharing and user-centred environment. This facilitates seamless browsing, searching, emailing, and chatting. The web has touched practically every aspect of our lives, and is a popular medium for publishing, sharing, communicating, and disseminating information. The WWW was originally based on the client-server model or simply hyperlinking the information, and this is known as the first generation of the Web (Web 1.0): a static web providing a non-interactive environment or one-way communication. The current version of the Web has progressed in a relatively new direction which provides an interactive and collaborative environment and has developed the content of the Web through the feedback of its users. It is known as the
second generation (Web 2.0) and facilitates tasks and services for users by providing them with interactive, information sharing, user oriented and collaborative environment online. Web 1.0 allowed users only to read or view the content of web sites or engage in one-way communication, whereas the Web 2.0 permits the user to read, view, edit and produce the contents on Web, and assists in two-way communication. The feedback of users is the most important characteristic of Web 2.0. This aspect draws a clear line between the first and second generations. Web 2.0 also assists the users to interact with the content creator, sharing views with colleagues, friends and professionals in a collaborative manner (Singh and Gill, 2012).

Web 2.0 is the latest phenomena amongst the researchers in every sphere of activity. In the present scenario, a number of studies has been conducted to comprehend these phenomena. Conferences, seminars, and symposia are being organised frequently by academic bodies to discuss Web 2.0 notions. Diverse types of research, both theoretical as well as practical, have been witnessed in these areas on a wider scale. Large numbers of articles have been published during this short span of time, and numerous journals have also published special issues on this topic. The present study explores the periodical literature available on Web 2.0 and Library 2.0 and their various components, applications, and facets. The study encompasses all the library and information studies journals that are provided by the Emerald journal publisher.

Concept of Web 2.0
The WWW is undergoing an exciting transformation that has come to be known as Web 2.0. It involves changes within internet technology, as well as in the way we think about and use the web (Kroski, 2008). It is a perceived or proposed as the second generation of internet-based services such as social networking sites (SNSs), wikis, communication tools and folksonomies that emphasizes online collaboration and sharing among users (Wikipedia, n.d.). According to Gibbons (2007) “Actualizing Web 2.0 is a growing set of simple yet powerful tools that are turning the web into an interactive, context-rich, and highly personalized experience.” The Web 2.0 concept has been defined variously as given above, but according to Tim O’Reilly (2005a) who not only coined the term Web 2.0 but also contributed enormously towards the advancement of the Web 2.0 and defined the concept of Web 2.0 as:

[... an application that provides the most intrinsic advantages of that platform [the network]: delivering software as a continually-updated service that gets better the people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an “architecture of participation”, and going beyond the page metaphor of Web 1.0 to deliver rich user experiences.

The basic principles as laid down by O’Reilly (2005b) are briefly summarized as (Table I).

Tools of Web 2.0
The various tools of Web 2.0 such as blogs, wikis, SNSs, RSS, tagging, instant messaging, and podcasts are popular and widely used by the user community. These tools provide much better and simple features, which are very flexible in both configuration and functionality. Table II describes the Web 2.0 tools and its application in libraries.
Objectives of the study
This study has several objectives:

(1) to identify the growth of periodical literature on the subject and identify major aspects of the Web 2.0 technologies;
(2) to identify the authorship pattern and collaborations among researchers;
(3) to find out the major leading journals in library and information science covering the literature on Web 2.0 technologies; and
(4) to compile a bibliography on Web 2.0 literature published in library and information science journals of Emerald.

Scope of the study
The present study covers journal articles from 13 leading scholarly peer-reviewed journals of library and information science published by Emerald on the topic of Web 2.0 and its various tools (see Table VI for a list of the journal titles). The main focus of the study is not only to cover research articles published in Emerald journals, but it also covers the book review literature on the topic. Table III shows the number and type of items covered under the study.

Methodology
Bibliographic data of the articles published in the selected journals were obtained from the Emerald database www.emeraldinsight.com directly using keywords such as “Web 2.0”, “blogs”, “wikis”, “RSS”, “SNSs”, “podcasts”, “Mashup”, YouTube, and Flickr. The bibliographical surrogates such as author, title, subtitle, source, issue, volume, pages, etc. were recorded in MS-Excel spreadsheet for the analysis and interpretations of data. The bibliography of selected articles was formatted according to the Harvard referencing standard being followed by the Emerald database.

Analysis and discussion
The collected data of 206 scholarly journal articles has been thoroughly scrutinised, analysed and interrelated using the MS-Excel (2010). The following tables give a complete picture of bibliometric study of periodical literature on Web 2.0 technologies.

Table IV shows the year wise growth on the subject. The study found that 2009 was the most productive year having 69 articles (33.49 percent), followed by 2011, in which 47 articles (22.81 percent) were published. In 2007, only 17 articles (8.25 percent) were published, notably fewer as compared to other years; the reason could be that

<table>
<thead>
<tr>
<th>Shared principles of web 2.0</th>
<th>Elucidation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The web as a platform</td>
<td>Delivers numerous dynamic services</td>
</tr>
<tr>
<td>Harnessing the collective intelligence</td>
<td>Accumulates the ideas of groups of people</td>
</tr>
<tr>
<td>Data is the next Intel side</td>
<td>Data produced through participating respondents</td>
</tr>
<tr>
<td>The end of the software release cycle</td>
<td>Development of software on behalf of users</td>
</tr>
<tr>
<td>Lightweight programming models</td>
<td>Simple programming language of web</td>
</tr>
<tr>
<td>Software above the level of a single device</td>
<td>Web contents for PC, iPod, cell phone</td>
</tr>
<tr>
<td>Rich user experience</td>
<td>Continuous interaction between users and creators</td>
</tr>
</tbody>
</table>

Table I. Principles of Web 2.0
<table>
<thead>
<tr>
<th>Web 2.0 tools</th>
<th>Explanation</th>
<th>Application in libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blogs</td>
<td>It is a kind of personal online diary, where people can enter their own ideas, thoughts and events, which are shared with others</td>
<td>Providing links to numerous resources of information in respective fields</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Queries and suggestions about the library services and activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Involves in interest based community of users</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participation in discussion forum</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Book review club</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Comments on particular aspects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creating subject guide portal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collaborative space among librarians and users</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication medium among library staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing reference services</td>
</tr>
<tr>
<td>Wikis</td>
<td>It is the online collaborative space for people to create, add, remove, edit and change the contents of web site</td>
<td>To announce forthcoming events and activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To alert about new subscription of new resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disseminate the contents of new journal issue</td>
</tr>
<tr>
<td>Really simple syndication (RSS)</td>
<td>It is a vehicle to syndicate current and up-to-date information to the people</td>
<td>Reference query work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chat service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Online seeking assistance</td>
</tr>
<tr>
<td>Instant messaging</td>
<td>It is a real conversation between two or more persons using a textual format over the internet</td>
<td>Promoting library events and services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highlight the new received books</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tagging items</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Staff as well as user collaboration</td>
</tr>
<tr>
<td>Social networking sites (SNSs)</td>
<td>SNSs are the virtual space among the people who share mutual interest and use it as an effective means of communication</td>
<td>To save favourite resources with appropriate subject heading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Share the resources with common interested peoples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To subject guide and web resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Readers advisory resources</td>
</tr>
<tr>
<td>Social bookmarking service</td>
<td>It is the practice of saving bookmarks to public web sites and tag them with keywords</td>
<td>Useful for providing user’s orientation programme</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To provide the lectures of experts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Audio training of accessing e-resources</td>
</tr>
<tr>
<td>Podcasts</td>
<td>Combination of two words iPod and web casting refers to a simple sound file that is played on electronic gadgets such as computers, laptops and mobiles save onto on mp3 digital audio format</td>
<td>To combine different resources at single platform</td>
</tr>
<tr>
<td>Mashup</td>
<td>Mashups are the hybrid application that combines data from more than one source into a single integrated tool</td>
<td>Library created Mashup tour</td>
</tr>
<tr>
<td>Multimedia sharing tools</td>
<td>The web providing the facilities to upload videos and photos and share with others on the web</td>
<td>User created Mashup tool</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To promote and marketing the library service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exhibition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Virtual tour of library</td>
</tr>
</tbody>
</table>

**Table II.**
Tools of Web 2.0
the concept Web 2.0 was introduced in the mid of 2004-2005 and may not have been so popular among the researchers.

In present era, the Web 2.0 is one of the major thrust areas in the domain of ICT. In order to determine the sub-fields of Web 2.0 as listed in the Table V, the selected articles were thoroughly analysed by the authors and categorized into sub-fields (narrow themes). These themes are well established in the published literature. Table V depicts that in addition to the major coverage of Web 2.0/Library 2.0 with 68 articles (33 percent), there are many other fields such as SNSs (29 articles), blogs (28), wiki (19), tagging (15), social media (11), and instant messaging (ten articles). The emerging fields such as folksonomies, social software, RSS, social bookmarking, and podcasts also have a substantial number of articles.

Table VI explores the core journals covering the literature on the subject and ranked as core journals of the Emerald database in the field of library and information science. It is clearly indicative from the study that *Online Information Review* covers the largest number of articles, i.e. 49 articles (23.78 percent), followed by *The Electronic Library*.

<table>
<thead>
<tr>
<th>Narrow theme</th>
<th>No. of papers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web 2.0/Library 2.0</td>
<td>68</td>
<td>33</td>
</tr>
<tr>
<td>Blogs</td>
<td>28</td>
<td>13.59</td>
</tr>
<tr>
<td>Wikis</td>
<td>19</td>
<td>9.22</td>
</tr>
<tr>
<td>RSS</td>
<td>3</td>
<td>1.45</td>
</tr>
<tr>
<td>SNSs</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>Multimedia sharing</td>
<td>6</td>
<td>2.91</td>
</tr>
<tr>
<td>Podcasts</td>
<td>6</td>
<td>2.91</td>
</tr>
<tr>
<td>Social software</td>
<td>6</td>
<td>2.91</td>
</tr>
<tr>
<td>Tagging</td>
<td>15</td>
<td>7.28</td>
</tr>
<tr>
<td>Social bookmarking</td>
<td>1</td>
<td>0.48</td>
</tr>
<tr>
<td>Folksonomies</td>
<td>4</td>
<td>1.94</td>
</tr>
<tr>
<td>Social media</td>
<td>11</td>
<td>5.33</td>
</tr>
<tr>
<td>Instant messaging</td>
<td>10</td>
<td>4.85</td>
</tr>
<tr>
<td>Total</td>
<td>206</td>
<td>100</td>
</tr>
</tbody>
</table>

Table V. Subject distribution of the periodical literature

The authorship pattern of the published periodical literature was explored. It was found that 101 articles (49 percent) were published with single authors followed by 58 articles (28.15 percent) with two authors, 31 (15 percent) with three authors, and only 16 articles with more than three authors (Table VII).

It is shown in Table VIII that Mike Thelwall (belongs to UK) is most productive author having a contribution of five articles (three as a single author and two as a joint author), followed by Hsi-Peng Lu, who has contributed all four articles as joint author. The remaining authors each had contributed three articles as joint authors.
The length of the research papers reveals the intellectual efforts by the researcher to present subject contents in elaborative manner. Table IX supports the related data and clearly indicates that content of the articles runs from pages 2 to 40 pages, which indicates a great difference in terms of length of the articles being contributed by the researchers. When we look at Table IX, it clearly indicates that 24 articles (11.65 percent) run to 13 pages followed by 17 articles with 15 pages, and 13 articles with 12 pages.

**Analysis of the book reviews**

The study covered 44 book reviews on Web 2.0 published in the same journals. The researchers have drawn the following findings by analysing the data.

Table X shows the four major aspects related to book reviews such as major subject coverage of books, core journals, most prolific authors and the most productive year to produce book reviews in literature. It is found that Web 2.0/Library 2.0 generally is the main subject area on which large amount of literature has been published and followed by SNSs. *Online Information Review* identified as the core journal which provided the most book reviews, followed by *The Electronic Library*, while Philip Barker is the most prolific reviewer having contributed five book reviews. Finally, the table shows that 2010 is as the most productive year for producing book reviews on Web 2.0.

<table>
<thead>
<tr>
<th>No. of pages</th>
<th>No. of papers</th>
<th>%</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td>3.39</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>4.36</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>3.39</td>
<td>23</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>0.97</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>2.91</td>
<td>31</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>1.45</td>
<td>34</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>3.88</td>
<td>42</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>2.91</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>4.85</td>
<td>58</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>5.82</td>
<td>70</td>
</tr>
<tr>
<td>12</td>
<td>13</td>
<td>6.31</td>
<td>83</td>
</tr>
<tr>
<td>13</td>
<td>24</td>
<td>11.65</td>
<td>107</td>
</tr>
<tr>
<td>14</td>
<td>7</td>
<td>3.39</td>
<td>114</td>
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<tr>
<td>15</td>
<td>17</td>
<td>8.25</td>
<td>131</td>
</tr>
<tr>
<td>16</td>
<td>12</td>
<td>5.82</td>
<td>143</td>
</tr>
<tr>
<td>17</td>
<td>8</td>
<td>3.88</td>
<td>151</td>
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<tr>
<td>18</td>
<td>11</td>
<td>5.33</td>
<td>162</td>
</tr>
<tr>
<td>19</td>
<td>10</td>
<td>4.85</td>
<td>172</td>
</tr>
<tr>
<td>20</td>
<td>8</td>
<td>3.88</td>
<td>180</td>
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<tr>
<td>21</td>
<td>3</td>
<td>1.45</td>
<td>183</td>
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<tr>
<td>22</td>
<td>4</td>
<td>1.94</td>
<td>187</td>
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<tr>
<td>23</td>
<td>4</td>
<td>1.94</td>
<td>191</td>
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<tr>
<td>24</td>
<td>5</td>
<td>2.42</td>
<td>196</td>
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<tr>
<td>25</td>
<td>2</td>
<td>0.97</td>
<td>198</td>
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<tr>
<td>26</td>
<td>3</td>
<td>1.45</td>
<td>201</td>
</tr>
<tr>
<td>29</td>
<td>3</td>
<td>1.45</td>
<td>204</td>
</tr>
<tr>
<td>38</td>
<td>1</td>
<td>0.48</td>
<td>205</td>
</tr>
<tr>
<td>40</td>
<td>1</td>
<td>0.48</td>
<td>206</td>
</tr>
</tbody>
</table>

Table IX. Length of research articles
Findings
The study provides the following major findings:

- 2009 is the most productive year having a contribution of 69 articles (33.49 percent) on Web 2.0 followed by the year 2011 in which 47 articles (22.81 percent) were published.

- In terms of the subject coverage, the study found that about 33 percent articles being published on Web 2.0/Library 2.0, followed by 14 percent on SNSs and 13.59 percent on blogs.

- In context of determining the core journals amongst the Emerald LIS titles, it is found that *Online Information Review* had the most articles on the topic, i.e. 49 (23.78 percent), followed by *The Electronic Library* having 25 (12.13 percent). Hence, these two journals can be considered as core journals for publishing research on Web 2.0 technologies.

- While exploring the authorship pattern it is revealed from the study that 101 articles (49 percent) have been published by single authors, and 58 (28.15 percent) by two authors.

- While analysing the book review status, it is found that Web 2.0/Library 2.0 is the main subject area on which large amount of literature has been published (20 books), followed by SNSs. The *Online Information Review* is the core journal for book reviews.

Conclusion
The study has been undertaken with the key interest to find out the periodical literature published on the topic of Web 2.0 in library and information studies journals.
of Emerald database. The study covers the various aspects of the subject to find the comprehensive literature on the subject field. It evaluated a five year period and revealed that a large number of articles and reviews have been published during the particular time period on this subject. The study could be very significant to those researchers looking for scholarly articles on the Web 2.0 and its facets. The appended bibliography will be very useful for research as all the articles are at one place. The authors hope it will also be useful for a publishing house in order to determine the prolific author on the topic and seek their expertise in reviewing the articles in the field.

References

Appendix 1. Bibliography


Appendix 2. Book reviews


About the authors
Dr K.P. Singh is a well-known Indian LIS professional and a prolific contributor to national and international platforms in the major areas of ICT in libraries, knowledge management, design and development of online directories and E-content management. He has been working as a Senior Assistant Professor in the Department of Library and Information Science in the University of Delhi, Delhi for the past 14 years and as a Principal Investigator of two Major Research Projects of DRDO and UGC. He did his Master degree in Agricultural Sciences and
Library and Information Science and his M.Phil and PhD in Library and Information Science. He is the recipient of the UGC-JRF/NET, ICAR-JRF, DRDO-JRF and SATKAL Young Librarian Award 2010. He has written eight books/edited works, about 70 research publications, guided more than 80 research projects to MLIS, M.Phil students and completed one Major Research Project (see www.aerodirindia.com). K.P. Singh is the corresponding author and can be contacted at: singhkp_1972@yahoo.co.in

Malkeet Singh Gill is working as Senior Research Fellow and pursuing a PhD (Library and Information Science) from the Department of Library and Information Science, University of Delhi. He did his MLIS and M.Phil from GNDU Amritsar and the University of Delhi, Delhi, respectively. He is the recipient of a Gold medal for BLIS and B.A (Hons) Punjabi. He has also completed PGDCA and one-year diploma courses in Urdu language. His areas of interest include: Web.2.0, social networking sites and social media, and ICT application in information work.

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